UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,329	10/17/2003	Shoji Kodama	16869B-081000US	2311

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *See Continuation Sheet*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :October 7, 2003 & October 20, 2005..

DETAILED ACTION

1.   This office action is in response to the petition to make special the above

mentioned application filed on July 26, 2006 has been granted. Therefore, claims 1-39

are presented for examination.

Oath/Declaration

2.   The applicant's oath/declaration has been reviewed by the examiner and is found

to confirm the requirements prescribed in **37 C.F.R. 1.63.**

Information Disclosure Statement

3.   The information disclosure statement (IDS) filed on October 20, 2005 and

October 7, 2003 complies with the provisions of M.P.E.P 609. It has been placed in the

application file. The information referred to therein has been considered as to the

merits.

Specification

4.   The disclosure is objected to because of the following informalities:

5.   Page 2, line 29, "The client is communicates" should be changed to –the client

communicates--.

6.   The abstract of the disclosure is objected to because applicant is required to

7.   remove "60062024 vl " from the abstract. Applicant is required to file a new

abstract on a separate sheet of paper.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9.   Claims 1-27 and 33, 35-39 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cochran US Patent no. 6,718,447 in view of Ulrich et al., (hereinafter

"Ulrich") US Patent no. 6,775,792.

As to claims 1, 10, 23, 33, and 37, Cochran provides a Method and System for

Providing Logically Consistent Logical Unit Backup Snapshots Within One or More Data

Storage Devices. In particular, Cochran discloses the claimed features "receiving a file

request in connection with a file [as the applications running on host computer 402

generate I/O requests for data stored on primary LUN 420 of disk array 418, which is

mirrored by backup LUN 428 of secondary disk array 424. (column 5, lines 61-64 &

column 6, lines 8-10)]; performing one or more first operations on a first file system in

response to the file request, wherein the one or more first file operations are performed

on a copy of the file [A WRITE request from output queue 404 thus is transmitted first to

the first disk array 418, queued to the input queue 416 of the first disk array 418. The

controller of the first disk array 418 dequeues WRITE requests from the input queue

416, executes the WRITE requests on the primary LUN 420 to write data to the primary

LUN, and queues mirror WRITE requests to output queue 422 for transmission to the

input queue 426 of the second disk array 424 for writing to the backup LUN 428.

(column 6, lines 9-17)]; selectively performing one or more second operations in

response to the file request, wherein the one or more second operations are performed

on a copy of the file, wherein client systems can access files on the first file system only

via the file server, wherein client systems can access files on the second file system

directly, absent the file server" [all WRITE requests related to the first and second

transactions have been executed on the primary LUN 420, which is now in a logically

consistent state. WRITE request 412 has been placed on output queue 422 of the first

disk array 418 for transmission as a mirror WRITE request to the second disk array 424.

WRITE request 411 resides on the input queue 426 of the second disk array 424. The

backup LUN 428 contains data associated with WRITE requests 406, 408, and 407, and

is therefore logically inconsistent with respect to both the first and second transactions.

Note that the data state of the primary LUN 420 is inconsistent with the data of the

backup LUN 428. (column 8, lines 3-14)]. Moreover, Cochran discloses queuing up

write requests, which are then mirrored to a backup LUN. However, Cochran does not

show or suggest a first file system different from a second file system as recited in

claims 1, 10, 23, 33, and 37.

On the other hand, Ulrich discloses a first file system different from a second file system

[(creating first file system metadata on a first file server operable connected to a

network fabric, the first file system metadata describing at least files and directories

stored by the first file server; creating second file system metadata on a second file

server connected to the network fabric, the second file system metadata describing at

least files and directories stored by the second file server, the first file system metadata

and the second file system metadata includes directory information that spans the first

file server and the second file server, the directory information configured to allow a

requestor to find a location of a first file catalogued in the directory information without

prior knowledge as to a server location of the first file, see col.7, lines 45-54)]. It would

have been obvious to one having ordinary skill in the art at the time the invention was

made to modify Cochran' system by providing a multiple file system different from each

other. One having ordinary skill in the art would have found it motivated to use such a

modification for the purpose of allowing the first file server to access files on the second

disk array in the event of a failure of the second file server.

As to claim 2, Ulrich discloses the claimed "wherein each file contained in the second

file system comprises sequentially allocated blocks" [(Each logical block is allocated to a

particular parity group type and may be subsequently accessed during data storage

processes when the group type is requested for data storage. During initialization of the

disk array 140, the server 130 allocates all available disk space to parity groups 2335 of

various lengths or sizes which are subsequently used to store data and information,

(see col.51, lines 18-23).].

As to claim 3, Ulrich discloses the claimed "wherein a format of the first file system is

different from a format of the second file system" [the first file system and second file

system use different networking protocols, which means the their file systems are

different, (see. col.47, lines 50-58)].

As to claim 4, Ulrich discloses the claimed "wherein the format of the first file system is

not a publicly known format and the format of the second file system is a publicly known

format" [the first file system metadata and the second file system metadata includes

directory information that spans the first file server and the second file server, the

directory information configured to allow a requestor to find a location of a first file

catalogued in the directory information without prior knowledge as to a server location of

the first file, (see col.7, lines 45-54)].

As to claim 5, Ulrich discloses the claimed "wherein each file contained in the second

file system comprises one or more blocks of physical storage allocated in sequential

order" [the ordering or sequence of the blocks   is maintained through a linked list

organizational schema, (see col.48, lines 35-48)].

As to claim 6, Ulrich discloses "wherein the step of performing one or more second

operations is performed if the file request includes a write-type operation on the file"

[instruction code is set up by the host CPU when the transfer is queued, and can specify

that data is to be written or read to one or both of the cache memories, (see col.60, lines

25-32)].

As to claim 7, Ulrich discloses "wherein the step of performing one or more second

operations is performed only after completing the step of performing one or more first

operations" [sending a root-directory lookup request to a first file server operable

connected to a network fabric; receiving a first lookup response from the first file server,

the first lookup response includes a server id of a second file server connected to the

network fabric; sending a directory lookup request to the second file server; and

receiving a file handle from the second file server, (col.5, lines 65-col.6, line 8)].

As to claim 8, Ulrich discloses the claimed "wherein the step of performing one or more

second operations is performed is queued up in a list of operations to be performed on

the second file system, wherein the list of operations comprise operations from previous

file" [As blocks are written to or read from the disk array, the server uses the links to

identify the order of the blocks used for each parity group, (col.48, lines 35-48)].

As to claim 9, Ulrich discloses the claimed "performing one or more second operations

is performed if the file close operation" [as the second file system information including

a second intent log of proposed changes to the second metadata, the first file server

having a copy of the second intent log, the second file server maintaining a copy of the

first intent log, thereby allowing the first file server to access files on the second disk

array in the event of a failure of the second file server, (see col. 6, lines 51-57)].

As to claims 11-16:

The limitations of claims 11-16 have been noted in the rejection of claims 2-9 above.

They are, therefore, rejected under the same rationale.

As to claim 17, Cochran and Ulrich disclose substantially the invention as claimed.

However, Cochran does not show or suggest that the second file operations on the

second file system are performed after the file request has on the first file system has

completed, as recited in claim 17. On the other hand, Ulrich discloses the use of the

second file operations on the second file system are performed after the file request has

on the first file system has completed (col.6, lines 45-58). It would have been obvious to

one having ordinary skill in the art at the time the invention was made to modify

Cochran' system by using second file operations on the second file system are

performed after the file request has on the first file system has completed. One having

ordinary skill in the art would have found it motivated to use such a modification for the

purpose of allowing the first file server to access files on the second disk array in the event of a failure of the second file server.

The limitations of claims 18-19 have been noted in the rejection of claims 2-9 above. They are, therefore, rejected under the same rationale.

As to claim 20, Cochran and Ulrich disclose substantially the invention as claimed. However, Cochran does not show or suggest that if the operation on the first file system is a close operation then copying the file to the second file system, as recited in claim 20. On the other hand, Ulrich discloses the use wherein if the operation on the first file system is a close operation then copying the file to the second file system (col.6, lines 35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cochran' system by determining if the operation on the first file system is a close operation then copying the file to the second file system. One having ordinary skill in the art would have found it motivated to use such a modification for the purpose of allowing the first file server to access files on the second disk array in the event of a failure of the second file server.

The limitations of claims 21-22 have been noted in the rejection of claims 2-9 above. They are, therefore, rejected under the same rationale.

Independent claims 23-27 recites similar elements as claims 1-9, in file server. They are rejected under the same rationale.

Independent claims 33 and 35-36 recites similar elements as claims 1-9, in an

application server. They are rejected under the same rationale.

Independent claims 37-39 recites similar elements as claims 1-9, in means plus

function language. They are rejected under the same rationale.

10.   **Claims 28-32 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Cochran US Patent no. 6,718,447 in view of Ulrich et al., (hereinafter "Ulrich") US

Patent no. 6,775,792 and further in view of the Applicant admitted prior art (see

specification page 1-2 and fig.1).

     Independent claims 28-32 and 34 recite similar elements as claims 1-9, in a file

server. Neither Cochran nor Ulrich disclose a NAS gateway; a storage area network

(SAN), the physical storage component comprising a portion of the SAN, the NAS

gateway configured to communicate over the SAN to access the physical storage

component. However, applicant admitted prior art discloses the claimed "a NAS

gateway; a storage area network (SAN), the physical storage component comprising a

portion of the SAN, the NAS gateway configured to communicate over the SAN to

access the physical storage component (see, fig.1 and specification page 1, section

[02]-[07]). Therefore, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the Cochran and Ulrich' system by

incorporating the use of SAN and NAS gateway. One having ordinary skill in the art

would have found it motivated to use such a NAS gateway into Cochran and Ulrich'

system for the purpose of providing access to the storage area network, thereby

providing high capacity storage.

Conclusion

1.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Chrin et al. (US 6782389 B1) disclose "Distributing files across

multiple, permissibly heterogeneous, storage devices."

2.   The examiner requests, in response to this Office action, support be shown for

language added to any original claims on amendment and any new claims. That is,

indicate support for newly added claim language by specifically pointing to page(s) and

line no(s) in the specification and/or drawing figure(s). This will assist the examiner in

prosecuting the application.

3.   When responding to this office action, Applicant is advised to clearly point out the

patentable novelty which he or she thinks the claims present, in view of the state of the

art disclosed by the references cited or the objections made. He or she must also show

how the amendments avoid such references or objections See 37 CFR 1.111(c).

4.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Noosha Arjomandi whose telephone number is (571)

272-9784. The examiner can normally be reached on Monday-Friday 7:30-5:00 E.S.T

(ALT Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Cottingham can be reached on 571-272-7079. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.
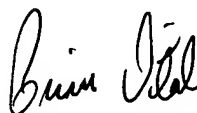
Information regarding the status of an application may be obtained from the Patent

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800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 3, 2007

Noosha Arjomandi

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